



Rechargeable batteries

November 2017

CeraCharge™ – first rechargeable solid-state SMD battery

- Compact EIA 1812 case size
- Wide temperature range from -20 °C to +80 °C
- Up to 1000 recharging cycles

TDK Corporation presents CeraCharge™ – the first solid-state rechargeable battery in SMD technology. Depending on requirements, the number of charge/discharge cycles this battery is able to perform ranges from several dozens to up to 1000. With its compact EIA 1812 package (4.5 x 3.2 x 1.1 mm) it offers a capacity of 100 µAh at a rated voltage of 1.4 V. This battery is also capable of delivering currents in the order of several mA for short periods. Thanks to the SMD technology, placement of the battery is easy and it can be processed using reflow soldering techniques, which in turn reduces the production cost of the end product.

In contrast to most common technologies, CeraCharge is a solid-state rechargeable battery with no liquid electrolyte. The battery is based on a multilayer technology, similar to MLCCs. This means that a relatively high energy density and smallest volume are combined with the safety and high volume manufacturing benefits of ceramic multilayer components. In addition, the use of a solid ceramic element as an electrolyte rules out the risk of fire, explosion, or leakage of liquid electrolyte.

To increase the capacity and the voltage, any number of individual CeraCharge components can be connected in series and parallel. This opens up a wide range of possible applications – particularly in devices intended for the Internet of Things. These include, for example, real-time clocks, Bluetooth beacons, wearables or systems for energy harvesting.

Main applications

- IoT devices, real-time clocks, Bluetooth beacons, systems for energy harvesting.

Main features and benefits

- Compact SMD design in EIA 1812 case size
- Easy placement and processing using reflow soldering techniques
- Solid ceramic electrolyte rules out the risks of fire, explosion, or leakage of liquid electrolyte.